2100 科技大未來

從現在到2100年，科技將如何改變我們的生活

本書將解答您對人類未來生活的所有疑惑！

「超弦理論」奠基者、Discovery《科幻成真》節目主持人
加來道雄(Michio Kaku)／著
張水金／譯

Physics Future

現在。你看得見未來！

Physics of the Future:
How Science Will Shape Human Destiny and
Our Daily Lives by the Year 2100

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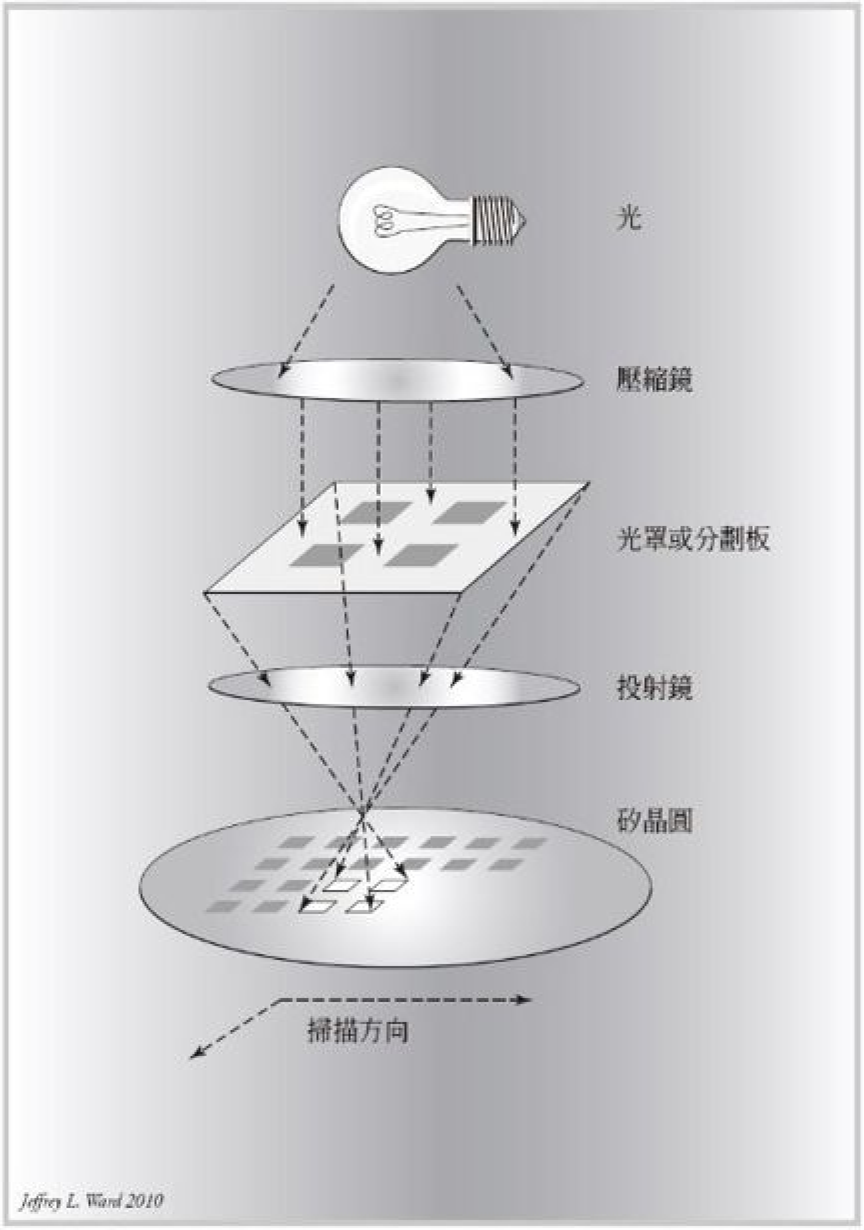
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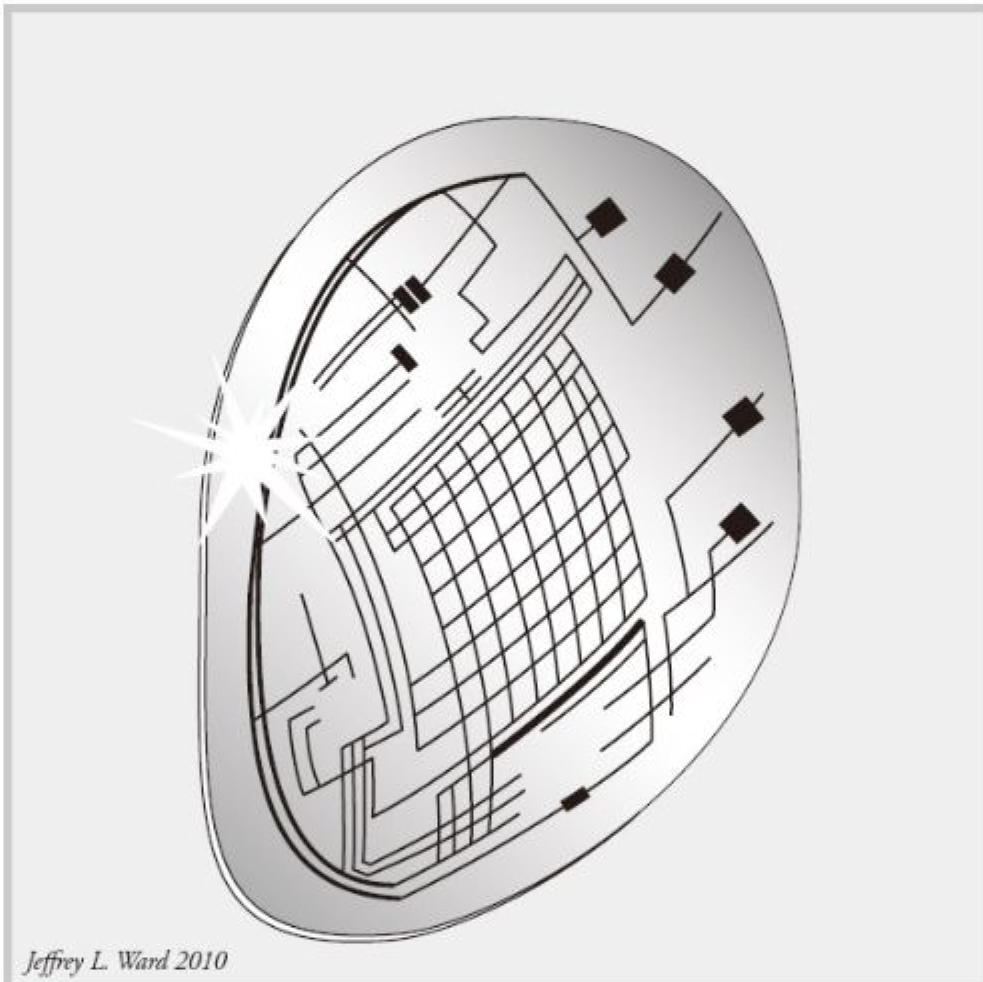
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[illegible]IBM[illegible]Deep Blue[illegible]·[illegible]
[illegible]Garry Kasparov[illegible]
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[illegible]·[illegible]Richard Heckler[illegible]

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[illegible]Pentium[illegible]CPU[illegible]

[illegible]Turing machine[illegible]——[illegible]·[illegible]Alan Turing[illegible]

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[illegible]Hebb’s rule[illegible]

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[illegible]pattern recognition[illegible]

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[illegible]Pinocchio[illegible]Wizard of Oz[illegible]Star Trek:The Next Generation[illegible]Data[illegible]——[illegible]

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[illegible]·[illegible]Antonio Damasio[illegible]

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[illegible]·[illegible]Henry Markram[illegible]Blue Brain Project[illegible]○○[illegible]neocortical column[illegible]

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[illegible]Dawn[illegible]·[illegible]Dharmendra Modha[illegible]〇〇[illegible]mouse[illegible]〇〇[illegible]rat[illegible]rat[illegible]mouse[illegible]

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[illegible]Hubble Telescope[illegible]

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[illegible]（Human Genome Project）[illegible]

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[illegible]（Howard Hughes Medical Institute）[illegible]·[illegible]（Gerry Rubin）[illegible]

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[illegible]Skynet[illegible]

[illegible]Matrix Trilogy[illegible]

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[illegible]Gödel,Escher,Bach:an Eternal Golden Braid[illegible]Douglas Hofstadter[illegible]

[illegible]·[illegible]

[illegible]consciousness[illegible]Gottfried Leibniz[illegible]·[illegible]David Chalmers[illegible]

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emergent phenomena——

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·Ray Kurzweil The age of Spiritual Machines:When computers Exceed Human Intelligence ○○ The Singularity Is Near

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·Stevie Wonder ——

NASA Ames labroratory Singularity University

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[illegible]Lotus Development Corporation[illegible]·[illegible]Mitch Kapor[illegible]……[illegible]——[illegible]

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[illegible]Blade Runner[illegible]——[illegible]·[illegible]Harrison Ford[illegible]

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[illegible]·[illegible]Isaac Asimov[illegible]

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[illegible]Friendly AI[illegible]

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[illegible]·[illegible]Rodney Brooks[illegible]

[illegible]bugbots[illegible]
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[illegible]Sigmund Freud[illegible]

[illegible]·[illegible]physics envy[illegible]
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[illegible]·[illegible]Linda Morfoot[illegible]

[illegible]Artificial Retina Project[illegible]

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[illegible]X[illegible]The Empire Strike Back[illegible]·[illegible]Luke Skywalker[illegible]·[illegible]Darth Vader[illegible]

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[illegible]·[illegible]Robert Lanza[illegible]——[illegible]

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[illegible]·[illegible]Stephen R.Quake[illegible]

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[illegible]Wake Forest University[illegible]·[illegible]Anthony Atala[illegible]——[illegible]

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·Ian Wilmut

DNA

BBC

·Ron Marquess

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·Louise Brpwn

[illegible]·[illegible]Francis Collins[illegible]

[illegible]porphyria[illegible]

[illegible]Queen Victoria[illegible]Alexis[illegible]Grigori Rasputin[illegible]

[illegible]cystic fibrosis[illegible]Tay-Sachs[illegible]sickle cell[illegible]

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[illegible]Richard Nixon[illegible]○[illegible]○○[illegible]○[illegible]

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Hercules

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Dante Alighieri Divine Comedy

hormone erythropoietin,EPO

Insulin-like growth factors,IGF

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[illegible]·[illegible]Gregory Benford[illegible]

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[illegible]·[illegible]

[illegible]The Epic of Gilgamesh[illegible]

[illegible]Odyssey[illegible]

[illegible]——[illegible]——[illegible]

[illegible]

[illegible]DNA[illegible]·[illegible]

[illegible]

[illegible]

[illegible]·[illegible]Oscar Wilde[illegible]The Picture of Dorian Gray[illegible]

[illegible]·[illegible]

[illegible]——[illegible]——[illegible]——[illegible]·[illegible]

[illegible]·[illegible]Michael Rose[illegible]Methuselah[illegible]——[illegible]superoxide dismutase,SOD[illegible]——[illegible]·[illegible]Thomas Johnson[illegible]age-1[illegible]

[illegible]age-1[illegible]age-2[illegible]daf-2[illegible]

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[illegible]·[illegible]Leonard P.Guarente[illegible]·[illegible]David Sinclair[illegible]SIR2[illegible]——[illegible]SIR2[illegible]SIRT[illegible]SIR2

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Minutes□□□□□□□□The Oprah Winfrey Show□□□□□□□□□□□□
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[illegible]SIR_2[illegible]

[illegible]○○[illegible]○[illegible]·[illegible]Christoph Westphal[illegible]Sirtris[illegible]

[illegible]SRT_{501}[illegible]SRT_{2104}[illegible]SIR_2[illegible]IGF_{-1}[illegible]TOR[illegible]rapamycin[illegible]

[illegible]

[illegible]

[illegible]·[illegible]William Haseltine[illegible]DNA[illegible]……[illegible]

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Alligator crocodile

telomere

Hayflick limit telomerase

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·Robert A.Freitas

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[illegible]

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[illegible]·[illegible]Thomas Malthus[illegible]

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[illegible]○[illegible]○[illegible]○[illegible]○[illegible]

[illegible]——[illegible]——[illegible]·[illegible]Lester Brown[illegible]

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[illegible]X[illegible]Y[illegible]——[illegible]

[illegible]·[illegible]Riahard Dawkins[illegible]The Selfish Gene[illegible]——[illegible]

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[illegible]DNA[illegible]

[illegible]DNA[illegible]·[illegible]DNA[illegible]DNA[illegible]DNA[illegible]Lucy Genome Project[illegible]Australopithecus[illegible]

[illegible]DNA[illegible]

[illegible]

[illegible]ASPM[illegible]

[illegible]HAR1[illegible]○○[illegible]HAR1[illegible]HAR1[illegible]

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[illegible]DNA[illegible]

[illegible]○○[illegible]·[illegible]Svante Pääbo[illegible]DNA[illegible]

[illegible]·[illegible]Richard Klein[illegible]$FOXP_2$[illegible]$FOXP_2$[illegible]

[illegible]DNA[illegible]

[illegible]·[illegible]George Church[illegible]DNA[illegible]

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[illegible]mammoth[illegible]

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[illegible]DNA[illegible]·[illegible]Webb Miller[illegible]·[illegible]Stephan C.Schuster[illegible]DNA[illegible]——[illegible]——[illegible]DNA[illegible]DNA[illegible]

[illegible]DNA[illegible]DNA[illegible]DNA[illegible]

[illegible]thylacine[illegible]Tasmanian deveil[illegible]dodo[illegible]Dead as a dodo[illegible]DNA[illegible]

[illegible]

[illegible] DNA [illegible] DNA [illegible]

[illegible]——[illegible] generalized dinosaur [illegible] bud [illegible]

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[illegible] chimera [illegible]

[illegible] the HOX genes [illegible]

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[illegible] DNA [illegible]

[illegible] The Boy from Brazil [illegible]

[illegible]

[illegible] Things to Come [illegible] H.G.Wells [illegible]

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[illegible] ○○ [illegible]

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H_1N_1

simian SIV

hantavirus Lyme disease

Ebola virus

Legionnaires

rhinovirus

HIV

○○ Aldous Huxley Brave New World

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[illegible]Alphas[illegible]Epsilons[illegible]

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[illegible]HGH[illegible]HGH[illegible]

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[illegible]The Time Machine[illegible]

[illegible]Canis lupus[illegible]

[illegible]breeds[illegible]——[illegible]

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[illegible]DNA[illegible]

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[illegible]·[illegible]Richard Smalley[illegible]·[illegible]Philip Kuekes[illegible]

[illegible]○○[illegible]National Nanotechnology Initiative[illegible]……[illegible]

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[illegible]

[illegible]There’s Plenty of Room at the Bottom[illegible]

[illegible]Honey,I Shrunk the Kids[illegible]The Incredible Shrinking Man[illegible]——[illegible]

[illegible]10×10×10[illegible]1,000[illegible]10×10[illegible]100[illegible]

[illegible]van der Waals Force[illegible]——[illegible]

[illegible]V[illegible]

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[illegible]Geiger counter[illegible]

[illegible]Ghost[illegible]·[illegible]Patrick Swayze[illegible]——[illegible]·[illegible]Demi Moore[illegible]——[illegible]

[illegible]Pauli exclusion principle[illegible]

[illegible]nanometer[illegible]

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[illegible]Fantastic Voyage[illegible]

[illegible]·[illegible]Jerome Schentag[illegible]

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BIND

polylactic acid glycolic

peptide

…… BIND · Omid Farokhzad

Argonne National Laboratory

glioblastoma
mutiforme,GBM

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[illegible]Jin Zhang[illegible]
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[illegible]adenosine triphosphate,ATP[illegible]
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[illegible]·[illegible]Thomas Mallouk[illegible]·[illegible]Ayusman Sen[illegible]
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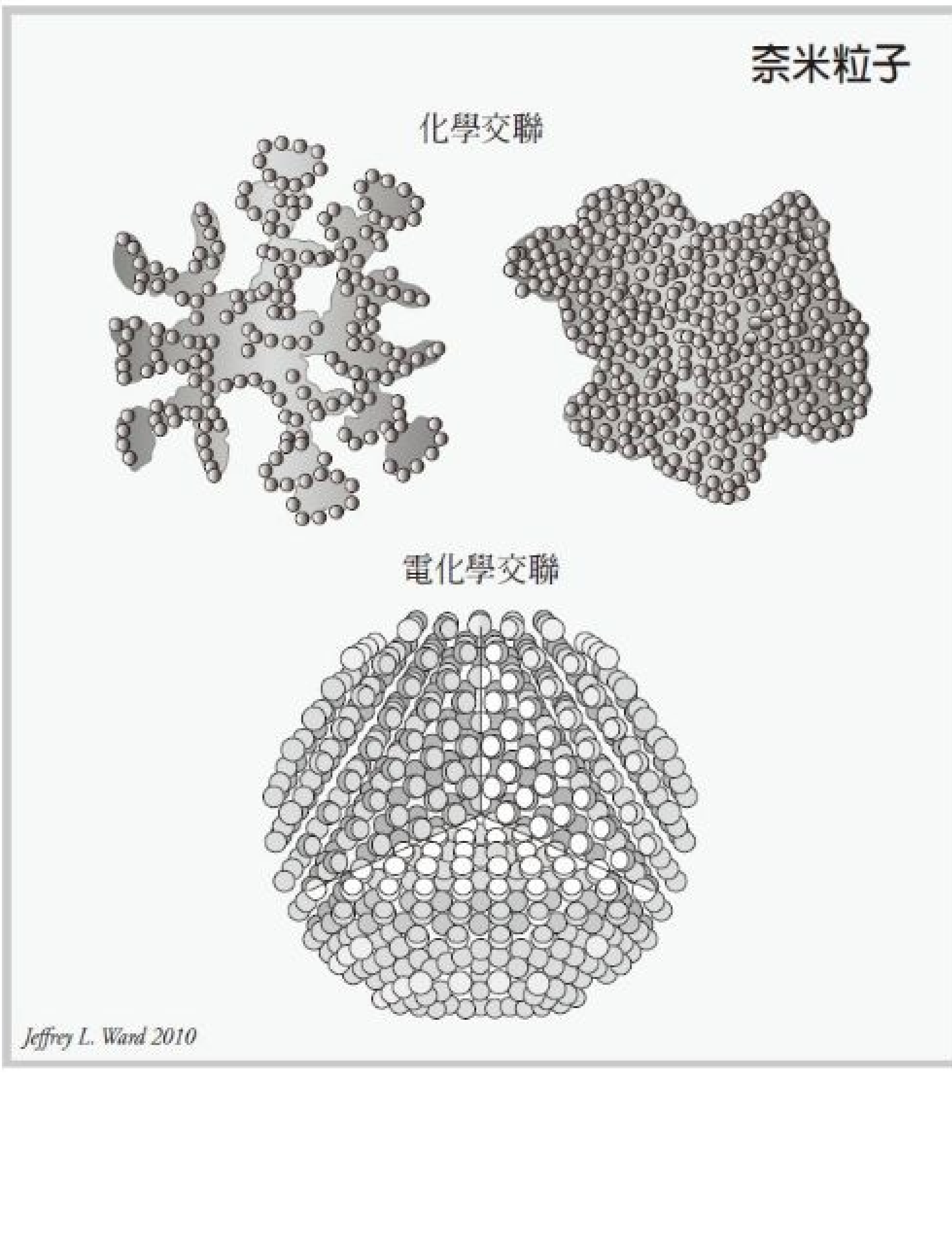
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奈米粒子
化學交聯
電化學交聯
Jeffrey L. Ward 2010

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DNA[illegible]

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[illegible]·[illegible]Shana Kelley[illegible]

[illegible]circulating tumor cell,CTCs[illegible]

[illegible]epithelial cell adhesion molecule,EpCAM[illegible]EpCAM[illegible]

[illegible]CTC[illegible]

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[illegible]·[illegible]Leroy Hood[illegible]

[illegible]

[illegible]carbon nanotubes[illegible]

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[illegible]·[illegible]Paolo Gargini[illegible]○○[illegible]

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[illegible]·[illegible]Seth Lloyd[illegible]——[illegible]0[illegible]1[illegible]1[illegible]0[illegible]

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Terminater 2:Judgement Day · T-1000 T-1000

○ ○

T-1000 programmable matter LED LED

claytronic atoms,catoms

· Jason Campbell

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（Justin Rattner）[illegible]

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[illegible]·[illegible]Seth Goldstein[illegible]——[illegible]

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[illegible]nanofabricator[illegible]The Engines of Creation[illegible]·[illegible]Eric Drexler[illegible]

[illegible]·[illegible]○○[illegible]Scientific American[illegible]sticky fingers[illegible]fat fingers[illegible]

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[illegible]Sun Microsystems[illegible]·[illegible]Bill Joy[illegible]

[illegible]Gray Goo[illegible]Prince Charles[illegible]

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[illegible]BBC[illegible]Discovery[illegible]Radical Evolution[illegible]·[illegible]Joel Garreau[illegible]

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·Sir Thomas
More Utopia

[illegible]·[illegible]Rodney Brooks[illegible]

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[illegible]·[illegible]M.King Hubbert[illegible]

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[illegible]·[illegible]Jerry Pournelle[illegible]

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[illegible]○○[illegible]Henry Ford[illegible]

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[illegible]Wind Base[illegible]

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[illegible]photovoltaic[illegible]○○[illegible]

[illegible]○○[illegible]SunPower[illegible]——[illegible]Nellis[illegible]

[illegible]○○[illegible]BrightSource Energy[illegible]

[illegible]Ivanpah[illegible]

[illegible]○○[illegible]First Solar[illegible]

[illegible]

Chevy Volt

Tesla Roadster

Discovery

Discovery Communications

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John Hendricks

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Robert Lutz

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Leaf

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FCX Clarity

FCX Sport

○○ Chevy Equinox

· Mike Schwabl

NASA

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[illegible]Sverdlovsk[illegible]Chelyabinsk[illegible]

[illegible]○[illegible]Lyons[illegible]——[illegible]

[illegible]Yucca Moutain[illegible]○○[illegible]

[illegible](图1)

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[illegible]（Odin[illegible]（Thor）——[illegible]（Loki[illegible]

[illegible]

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[illegible]238[illegible]·[illegible]235[illegible]○·[illegible]235[illegible]

[illegible]235[illegible]238[illegible]235[illegible]○·[illegible]（Oak Ridge[illegible]

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[illegible]（utracentrifuges[illegible]235[illegible]238[illegible]238[illegible]235[illegible]

·A.Q.Khan URENCO ·Saddam Hussein

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235 238 235 238 235 238

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○○ Silex ○○ Wilmington

[illegible]·[illegible]Theodore Taylor[illegible]·[illegible]Davy Crockett[illegible]Orion project[illegible]

[illegible]○[illegible]○[illegible]

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☆[illegible]○○[illegible]○[illegible]○[illegible]○○○[illegible]○○[illegible]

☆[illegible]West Nile Virus[illegible]

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[illegible]○○[illegible]Global Business Network[illegible]

[illegible]——[illegible]——[illegible]·[illegible]Peter Schwartz[illegible]

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☆[illegible]·[illegible]Paul Crutzen[illegible]Mount Pinatubo[illegible]sulfate aerosols[illegible]

☆[illegible]iron-based[illegible]Planktos[illegible]London Convention[illegible]

☆[illegible]——[illegible]○○[illegible]○[illegible]Mountaineer[illegible]

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J.Craig Venter

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[illegible] helium [illegible] Lawson’s criterion [illegible]—— [illegible]

[illegible]

[illegible] nuclei fuse [illegible]

[illegible] ○ [illegible] ○ [illegible]

[illegible]·[illegible] Juan Perón [illegible]·[illegible] Ronald Richter [illegible] Thermotron [illegible]—— [illegible]

[illegible]·[illegible] Ralph Lapp [illegible]

[illegible]·[illegible] David Lilienthal [illegible]

[illegible]

·Stanley Pons·Martin Fleischmann

cold fusion

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[illegible]·[illegible]Farrokh Najmabadi[illegible]

[illegible]

[illegible]General Atomic[illegible]DIII-D[illegible]·[illegible]David E.Baldwin[illegible]

[illegible]——[illegible]

[illegible]

[illegible]The International Thermonuclear Experimental Reactor,ITER[illegible]National Ignition Facility,NIF[illegible]

[illegible]——[illegible]

[illegible]NIF[illegible]

deuterium and tritium

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NIF · Edward Moses —— NIF

NIF NIF · Michael Campbell ○○ ○○

NIF HiPER NIF ○

NIF (2)

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[illegible]magnetic bottle[illegible]○[illegible]

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ITER[illegible]

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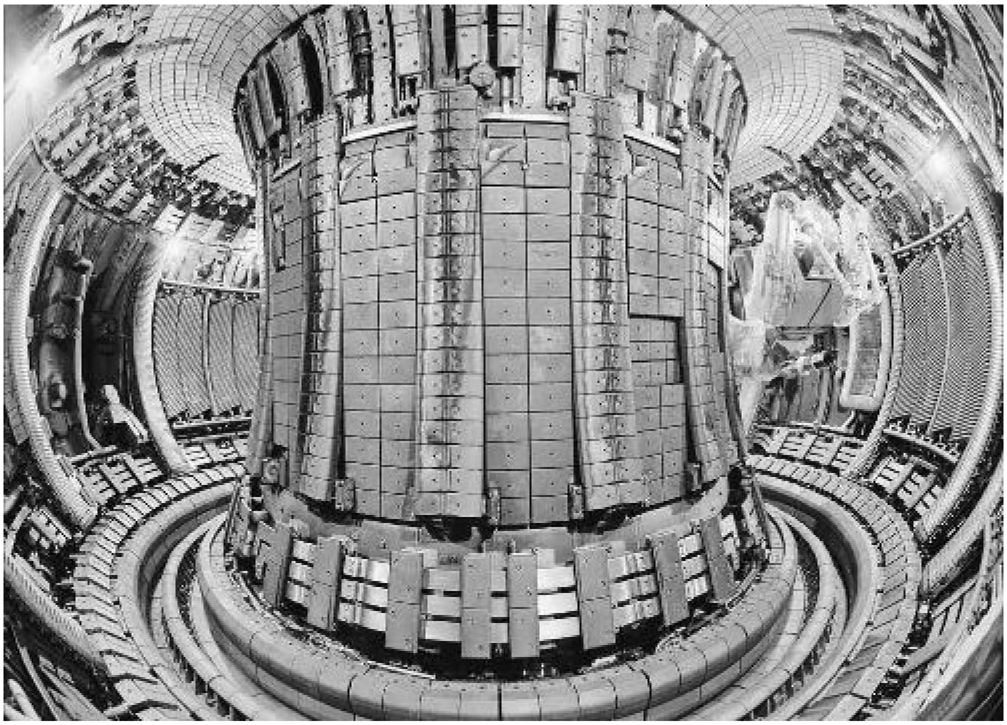
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DEMO□□□□□□□□□□□□□□□ITER□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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[illegible]AFP/Getty Images[illegible]

[illegible]ITER[illegible]DEMO[illegible]

[illegible]NIF[illegible]ITER[illegible]

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[illegible]Back to the Future[illegible]Doc Brown[illegible]Delorean[illegible]Mr.Fusion[illegible]

[illegible]

[illegible]Sonoluminescence[illegible]sonic fusion[illegible]bubble fusion[illegible]University of Cologne[illegible]

[illegible]

[illegible]·[illegible]Rusi Taleyarkhan[illegible]○○[illegible]

[illegible]·[illegible]Philo Farnsworth[illegible]RCA[illegible]

[illegible]Fusor[illegible]

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[illegible]kelvin[illegible]K[illegible]
[illegible]([illegible]3)[illegible]

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[illegible]IBM[illegible]K[illegible]

[illegible]K[illegible]K[illegible]

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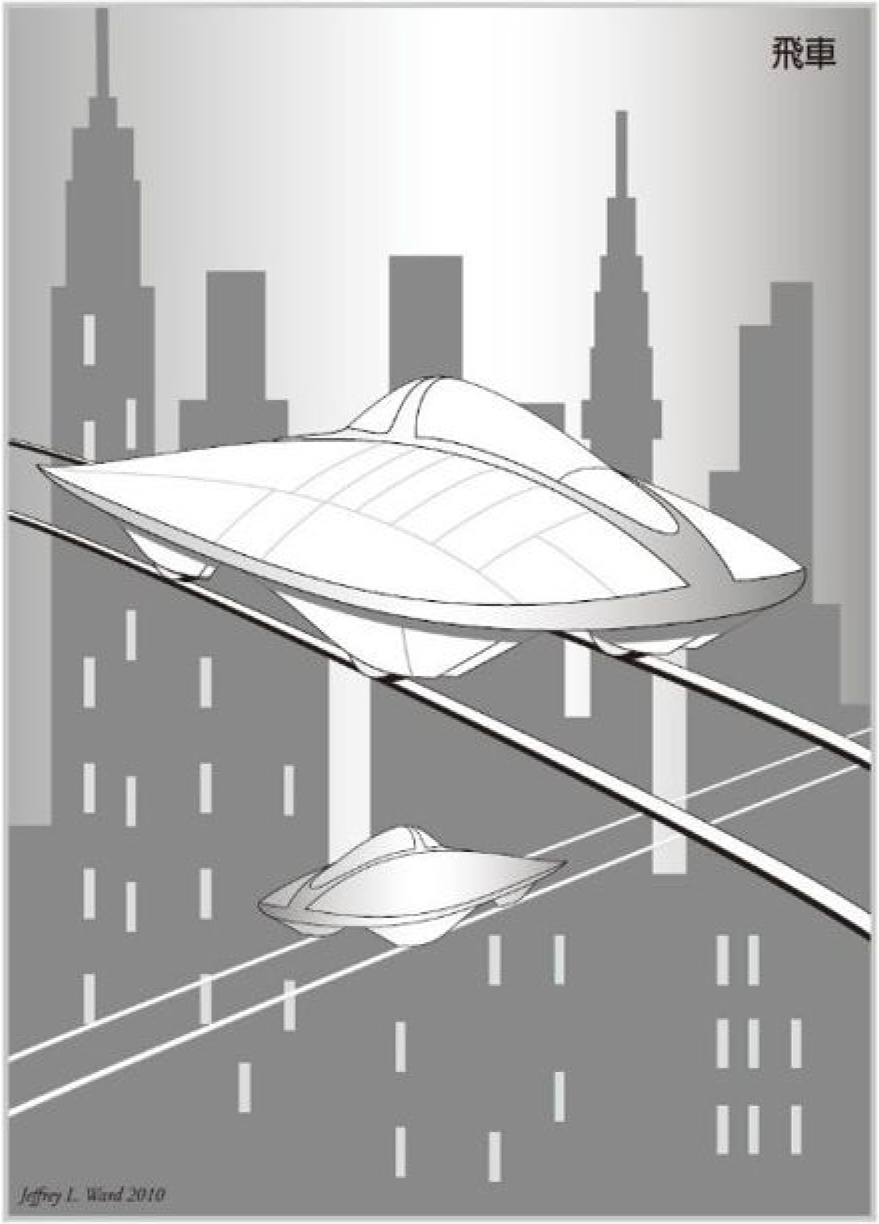
[illegible]

[illegible]·[illegible]Michael J.Fox[illegible]

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[illegible]magnetic levitating train,maglev[illegible]

[illegible]○○[illegible]MLX01[illegible]

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[illegible]space solar power,SSP[illegible]geostationary[illegible]

[illegible]SSP[illegible]——[illegible]

[illegible]·[illegible]Peter Glaser[illegible]NASA[illegible]

[illegible]○○[illegible]NASA[illegible]SSP[illegible]SSP[illegible]·[illegible]Martin Hoffert[illegible]SSP[illegible]

[illegible]——[illegible]

[illegible]·[illegible]○○[illegible]Washington Post[illegible]

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[illegible]○○[illegible]·[illegible]

[illegible]Kensuke Kanekiyo[illegible]

[illegible]○[illegible]

[illegible]Excalibur[illegible]Hiroshi Yoshida[illegible]

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[illegible]2[illegible]○[illegible]NIF[illegible]

[illegible]3[illegible]273.15K[illegible]373.15K[illegible]1K[illegible]1[illegible]

[illegible] [illegible]——[illegible]

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[illegible]○[illegible]○[illegible]——[illegible]

[illegible]○○[illegible]Kepler Mission[illegible]○○[illegible]COROT[illegible]——[illegible]DNA[illegible]

[illegible]

[illegible]——[illegible]Terrestrial Planet Finder[illegible]

[illegible]

[illegible]

[illegible]——[illegible]

[illegible]Goldlocks zone[illegible]DNA[illegible]

[illegible]Europa[illegible]○[illegible]

[illegible]

[illegible]——[illegible]·[illegible]James Cameron[illegible]○○[illegible]

[illegible]Europa Jupiter System Mission,EJSM[illegible]○[illegible]○[illegible]Europa Ice Clipper Mision[illegible]

[illegible]○[illegible]Alvin[illegible]Galapagos Rife[illegible]DNA[illegible]DNA[illegible]DNA[illegible]

LISA——

Laser Interferometer Space Antenna,LISA

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Wilkinson Microwave Anisotropy Probe,WMAP

LISA LISA

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LISA ○ ○ ○

LISA

LISA pre-big bang era

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—— the big splat theory

[illegible]——[illegible]eternal inflation[illegible]LISA[illegible]LISA[illegible]

[illegible]LISA[illegible]LISA[illegible]——[illegible]Big Bang Observer[illegible]——[illegible]

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[illegible]——[illegible]

[illegible]·[illegible]Neil Armstrong[illegible]·[illegible]Buzz Aldin[illegible]

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[illegible]·[illegible]John Glenn[illegible]

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[illegible]·[illegible]George W.Bush[illegible]○[illegible]○[illegible]○[illegible]Constellation[illegible]○[illegible]○[illegible]

[illegible]○○[illegible]Augustine Commission[illegible]NASA[illegible]NASA[illegible]NASA[illegible]

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[illegible]Stickney crater[illegible]

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[illegible]Moon First[illegible]——[illegible]

[illegible]Ares[illegible]○[illegible]Orion[illegible]Altair[illegible]

[illegible]Columbia[illegible]○○[illegible]

[illegible]○[illegible]NASA[illegible]

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[illegible]lava tube[illegible]——[illegible]○○[illegible]

[illegible]millirem[illegible]X[illegible]

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[illegible]NASA[illegible]

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[illegible]Ceres[illegible]

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[illegible]——[illegible]

[illegible]

[illegible]

[illegible]Christopher Columbus[illegible]

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[illegible]·[illegible]Gerard O’Neill[illegible]

[illegible]NASA[illegible]·[illegible]Burt Rutan[illegible]○○[illegible]X[illegible]Ansari X Prize[illegible]SpaceShipOne[illegible]·[illegible]Paul Allen[illegible]

[illegible]Virgin Atlantic[illegible]·[illegible]Richard Branson[illegible]Virgin Galactic[illegible]

[illegible]Mach[illegible]

· Charles Simonyi

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· John Elbon

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· Leik Myrabo lightcraft technology

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[illegible]X[illegible]X[illegible]·[illegible]Peter Diamandis[illegible]X[illegible]X[illegible]

[illegible]·[illegible]Abraham Hertzberg[illegible]——[illegible]

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[illegible]·[illegible]Derek Tidman[illegible]

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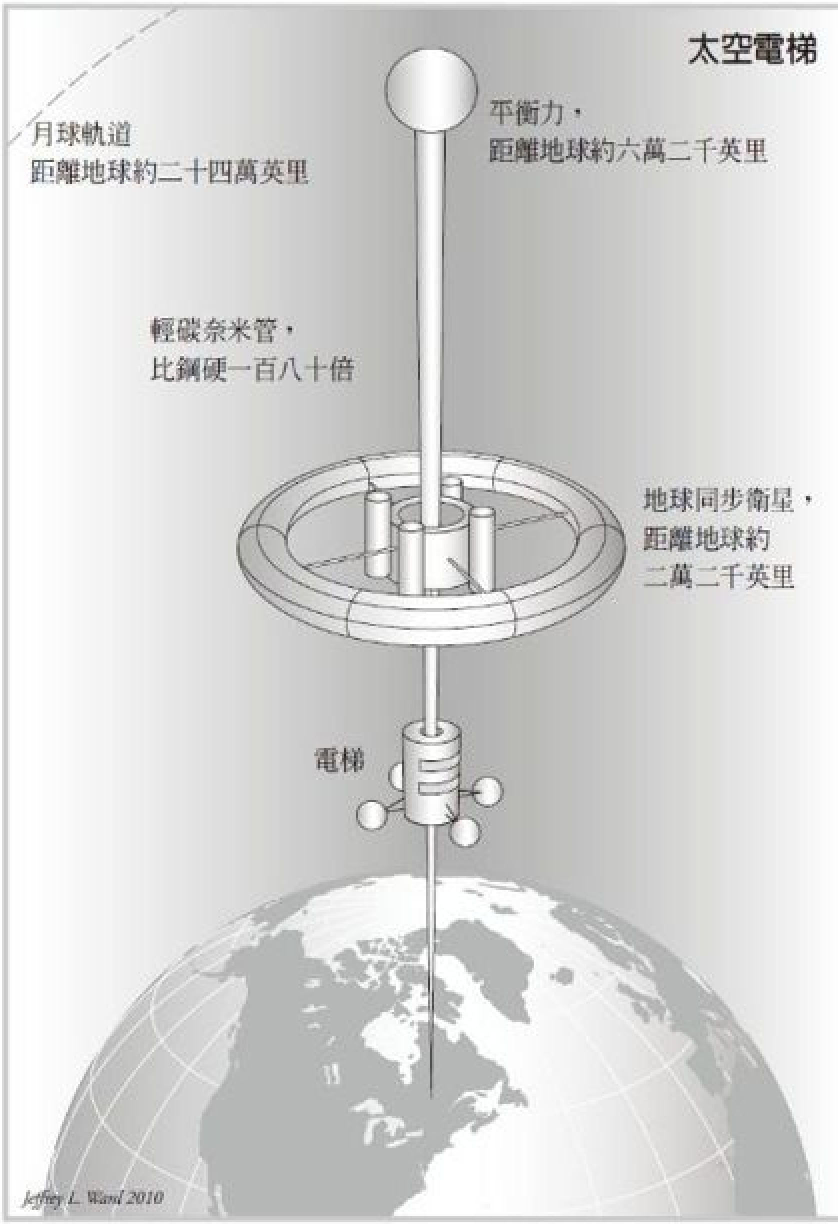
[illegible]·[illegible]Yuri Artsutanov[illegible]·[illegible]Arthur C.Clarke[illegible]The Fountains of Paradise[illegible]·[illegible]Robert Heinlein[illegible]Friday[illegible]

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[illegible]Matteo Pasquali[illegible]



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[illegible]NASA[illegible]NASA[illegible]Beam Power Challenge[illegible]

[illegible]LaserMotive[illegible]NASA[illegible]

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[illegible]NASA[illegible]

[illegible]NASA[illegible]·[illegible]Les Johnson[illegible]

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[illegible]Mir space station[illegible]○○[illegible]○○[illegible]Planetary Society[illegible]Cosmos Studios[illegible]Cosmos 1[illegible]Volna[illegible]○○[illegible]NASA[illegible]D[illegible]Nanosail-D[illegible]Falcon[illegible]

[illegible]○[illegible]○[illegible]JAXA[illegible]IKAROS[illegible]([illegible]1)[illegible]

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[illegible]Project Rover[illegible]○[illegible]○[illegible]

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[illegible]General Atomics[illegible]

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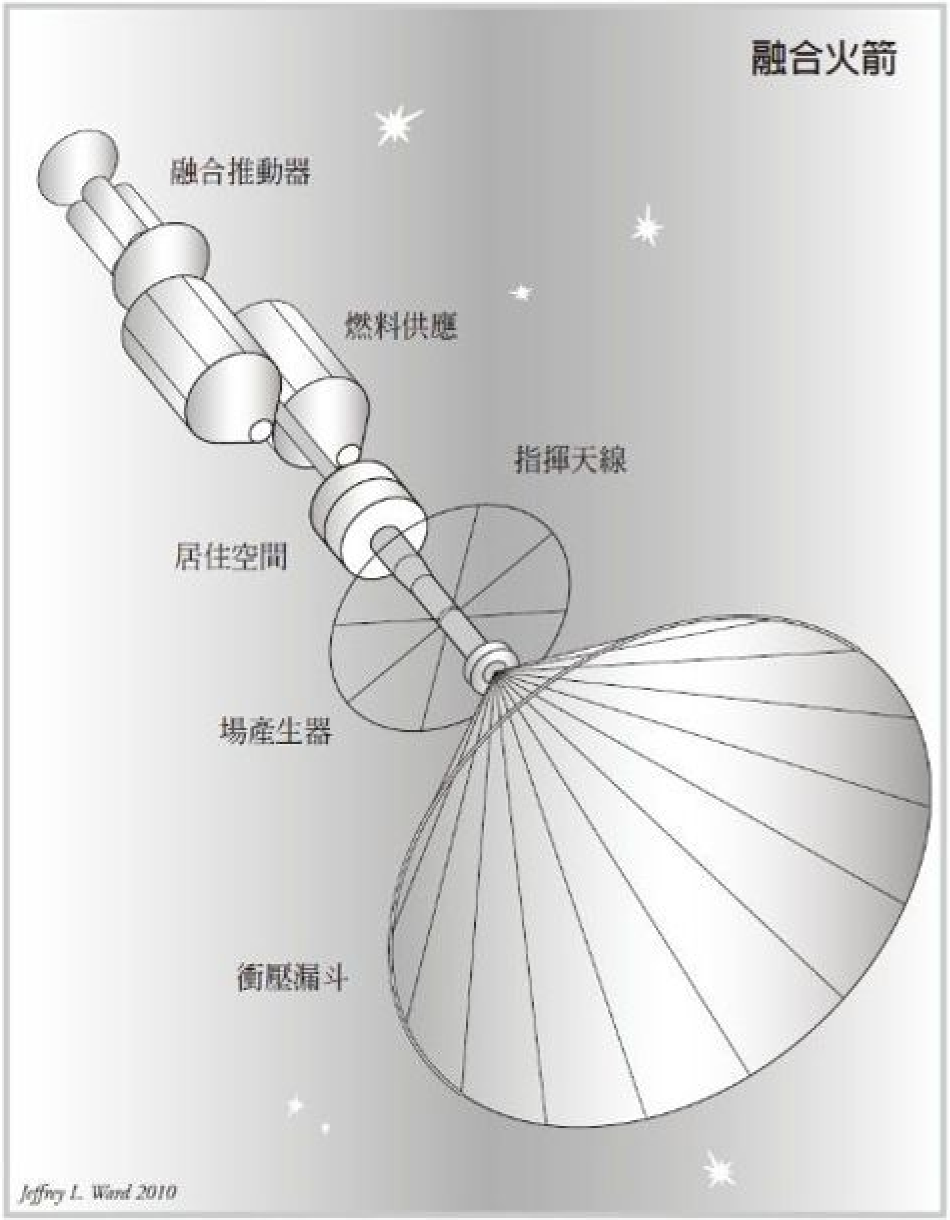
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[illegible]
（Andromeda galaxy）——[illegible]

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[illegible]·[illegible]Robert Zubrin[illegible]·[illegible]
（Dana Andrews）[illegible]


融合火箭
融合推動器
燃料供應
指揮天線
居住空間
場產生器
衝壓漏斗
Jeffrey L. Ward 2010

[illegible]

[illegible]·[illegible]Dan Brown[illegible]Angels and Demons[illegible]CERN[illegible]E[illegible]mc^2[illegible]

[illegible]·[illegible]Gerald Smith[illegible]

[illegible]CERN[illegible]Fermi National Accelerator Laboratory[illegible]Tevatron[illegible]CERN[illegible]

[illegible]·[illegible]Dave McGinnis[illegible]○○[illegible]CERN[illegible]

[illegible]NASA[illegible]·[illegible]Harold Gerrish[illegible]

[illegible]PAMELA[illegible]Payload for Antimatter Matter Exploration and Light-Nuclei Astrophysics[illegible]○○[illegible]

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[illegible]——[illegible]reghlith[illegible]

[illegible]○○[illegible]NASA[illegible]·[illegible]Mason Peck[illegible]

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[illegible]NASA[illegible]

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[illegible]NASA[illegible]○○[illegible]

[illegible]——[illegible]

[illegible]

[illegible]Lorentz Force[illegible]——[illegible]CERN[illegible]

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[illegible]Pei Zhang[illegible]

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[illegible]Ottoman Empire[illegible]

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[illegible]·[illegible]Mahathir Mohamad[illegible]

[illegible]Gutenberg[illegible]John Dalton[illegible]·[illegible]Paul Kennedy[illegible]

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[illegible]·[illegible]John Gordon[illegible]○[illegible]

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[illegible]——[illegible]○[illegible]

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[illegible]·[illegible]Virginia Postrel[illegible]○[illegible]——[illegible]

[illegible]○[illegible]○[illegible]○[illegible]

[illegible]·[illegible]Thomas Friedman[illegible]……[illegible]

[illegible]T[illegible]○[illegible]○○[illegible]

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[illegible]——[illegible]○[illegible]——[illegible]○○[illegible]

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[illegible]Merrill Lynch[illegible]·[illegible]John Steffens[illegible]ZDNet[illegible]·[illegible]Charles Gasparino[illegible]

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[illegible]·[illegible]Potter Stewart[illegible]

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[illegible]

[illegible]——[illegible]

[illegible]·[illegible]Hamish McRae[illegible]

[illegible]——[illegible]

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[illegible]○[illegible]○─[illegible]○○[illegible]

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[illegible]·[illegible]Adam Smith[illegible]
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[illegible]data mining[illegible]

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[illegible]Big Brother[illegible]·[illegible]George Orwell[illegible]Nineteen Eighty-Four[illegible]

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[illegible]commodity capitalism[illegible]intellectual capitalism[illegible]

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[illegible]·[illegible]James Grant[illegible]……[illegible]

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——Those who can,do.Those who can’t,teach.(1)

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Alvin and Heidi Toffler ○ ○○○

Rust Belt ○

—— brain drain
H1B ——
H1B

H1B ——
· Gerhard Schroeder H1B
H1B

H1B ——

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[illegible]·[illegible]Bill Gates[illegible]·[illegible]Steve

Jobs[illegible]
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[illegible]1[illegible]George Bernard Shaw[illegible]Man and Superman[illegible]

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[illegible]Buck Rogers in the 25th Century[illegible]·[illegible]Buck Rogers[illegible]

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☆[illegible]·[illegible]Michael E.Krauss[illegible]

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[illegible]Edward Luttwak[illegible]·[illegible]

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[illegible]red giant[illegible]

[illegible]Dyson sphere[illegible]

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[illegible]von Neumann probe[illegible]——[illegible]

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[illegible]Search for Extraterrestrial Intelligence,SETI[illegible]
[illegible]Hat Creek[illegible]

[illegible]SETI[illegible]SETI[illegible]SETI[illegible]

[illegible]SETI[illegible]·[illegible]Seth Shostak[illegible]

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[illegible]unmix[illegible]

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[illegible]entorpy conserving[illegible]——[illegible]

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[illegible]·[illegible]Benjamin Franklin[illegible]——[illegible]○[illegible]

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[illegible]

[illegible]·[illegible]Marquis de Condorcet[illegible]Sketch for a historical Picture of the Progress of Human[illegible]

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[illegible]Immanuel Kant[illegible]

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[illegible]·[illegible]Thomas Aquinas[illegible]

——[illegible]·[illegible]Steven Post[illegible]

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☆[illegible]DNA[illegible]saber-toothed tiger[illegible]DNA[illegible]

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[illegible]Mahatma Gandhi[illegible]

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[illegible]Michio Kaku[illegible]

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